STRUCTURAL ASSESMENT

General Farm Store Building
Tranwell Airfield
Morpeth
Northumberland

on behalf of
Mr D Brown

November 2021

1. INTRODUCTION

Strutt & Parker have submitted on behalf of the Applicant, Mr Brown, a Prior Notification for the conversion to residential use of part of a building at the former Tranwell Airfield, Morpeth, under Class Q of the General Permitted Development Rights Order.

We have undertaken an inspection of the existing building to assess its structural condition and integrity and provide an opinion on the suitability of these donor buildings for conversion to residential use.

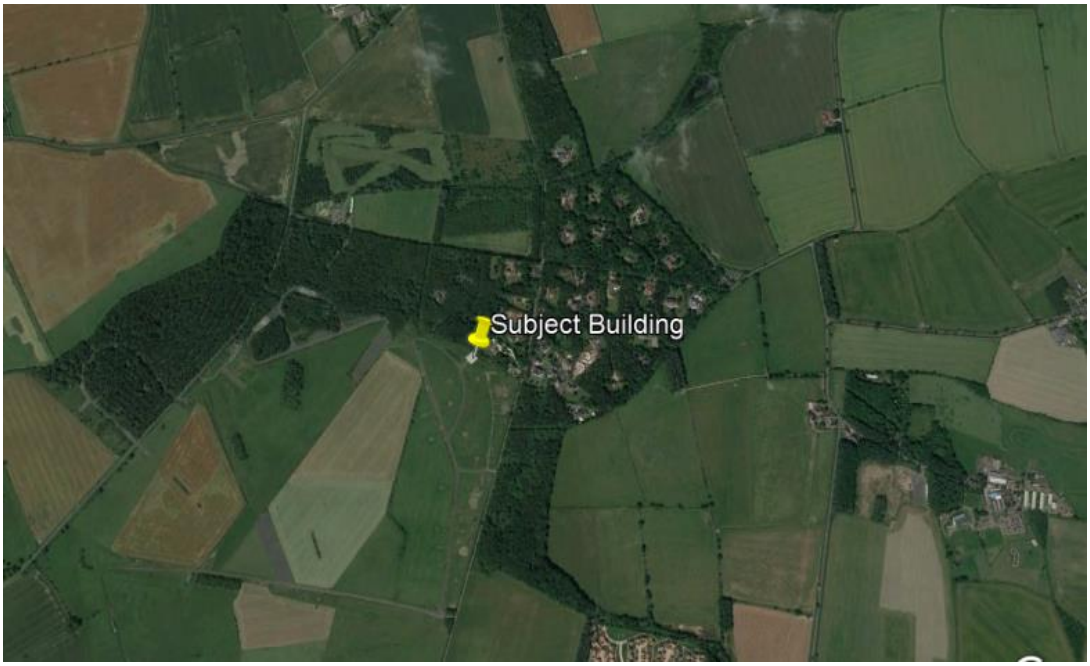
The full details of the proposed conversion are provided within the drawings and other supporting documents comprising the application and this structural assessment should be read in conjunction with these.

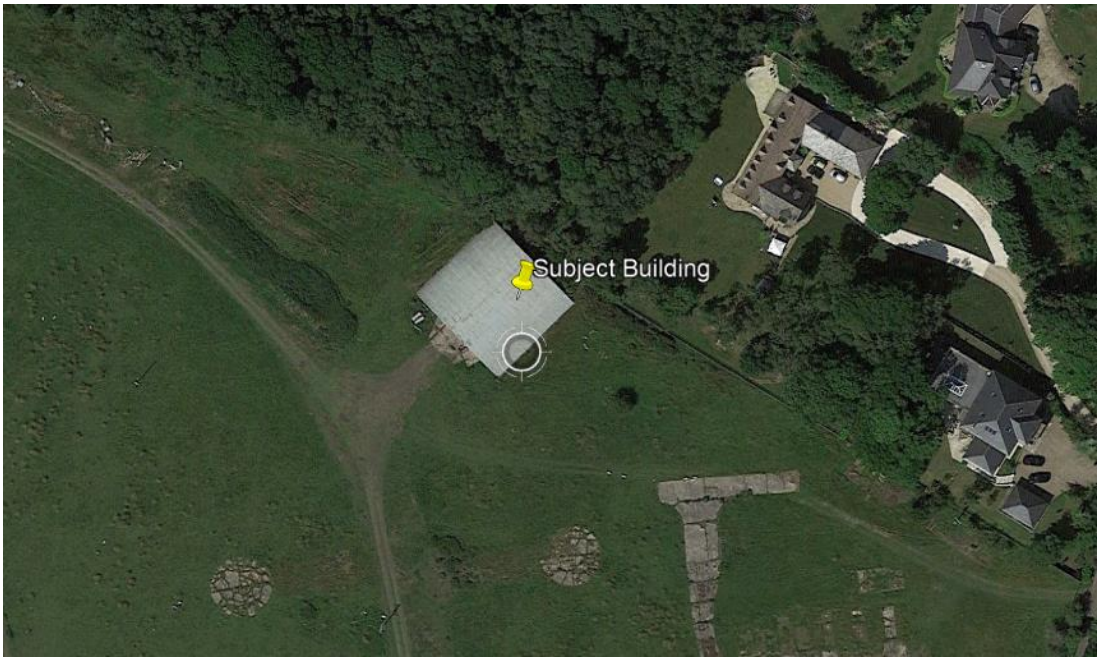
2. LOCATION & SETTING

The subject building stands in an isolated position on a former WWII airfield at Tranwell, about 2 miles south west of the centre of Morpeth. Being a former airfield the surrounding land is relatively flat. To the immediate north is mature broadleaf woodland and this extends further to east and west. The former airfield itself largely comprises informal and relatively unimproved pasture interspersed with concrete pads and roads which formed part of the aircraft stands and access routes. The disused runway itself has been removed some time ago.

The land is extensively grazed by livestock owned by the applicant and at the time of inspection the building was partly filled with bales of hay and straw. It is understood that in the spring months the building is used for lambing purposes.

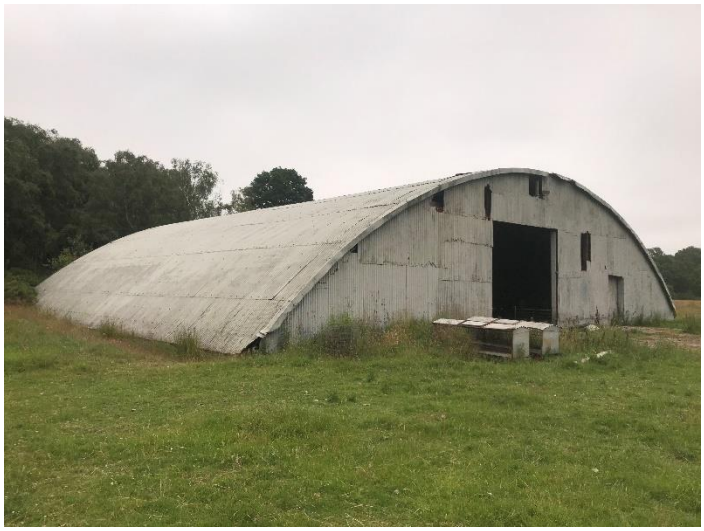
The site is accessed from the C151 public highway via one of the former airfield concrete roads by means of a broad and recessed verge crossing and double gates.





3. DESCRIPTION OF THE BUILDING

The subject building is thought to have been present on the site since WWII, having been originally constructed as either a general purpose storage building, or quite possibly an aircraft hangar for smaller aeroplanes. Following the end of the war the airfield was returned to agricultural use.

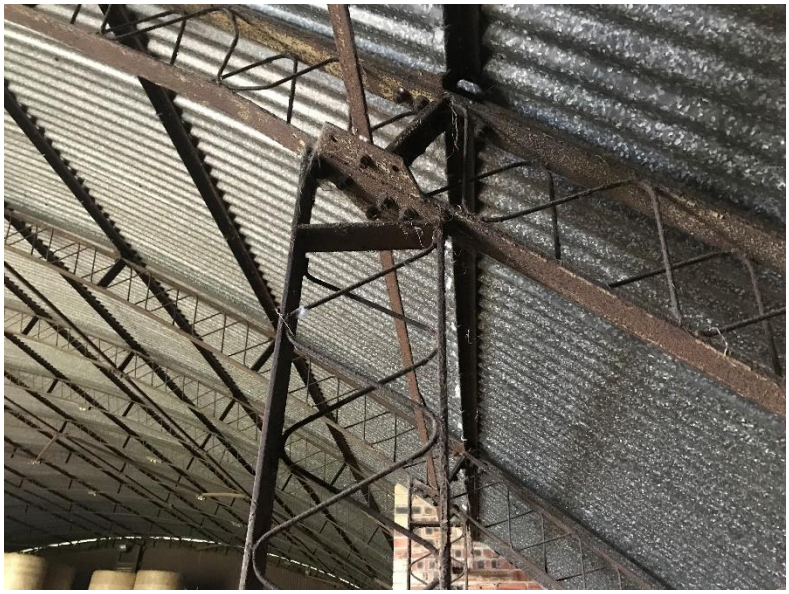


The building stands on a concrete floor slab which is approximately flush with outside ground levels. The depth of the concrete has not been accurately established, nor is the presence of any form of steel reinforcement known, but given the current and previous usage the floor slab is clearly capable of withstanding loadings generated by large agricultural machinery, indicating that normal domestic loadings should readily be accommodated. There is no evidence of a damp proof membrane being present and it is likely that this was not incorporated during construction.

Small brick dwarf walls are constructed along the east and west edges of the floor slab so there is no effective seal along these edges. Inside the wall there is a series of anchor points for bespoke steel lattice trusses which span the entire width of the building with an arc profile and to which are secured a series of steel angle iron purlins approximately 75 x 75mm with galvanised corrugated steel curved roof sheets secured directly to this with galvanised U-bolts.

The principal trusses are arranged to form 11 equal bays of approximately 2.2m centres to provide an overall external building length of approximately 25.35m and width of 28.85m. Each of the trusses is formed by painted steel outer bands of approximately 80mm width separated to a depth of around 280 mm by a series of 200 mm steel bars triangulating at alternate centres across the span.

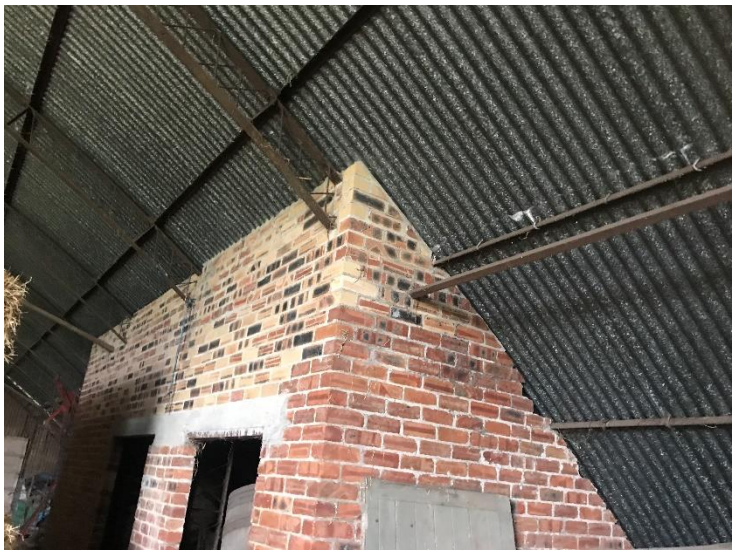
Each truss has a vertical support of similar steel lattice, at around 2.5m from the dwarf walls, to provide additional stability.



The gables to the building are formed with 190mm x 80mm vertical steel channel stanchions arranged vertically at 4.5m centres and secured to the trusses. The gables are similarly clad with corrugated galvanised sheeting with painted finish secured to with U bolts in a similar fashion to the roof.

Intermittently throughout the structure are a series of triangulating crossbars adding additional rigidity.

A small room has been partitioned from the eastern side of the building by way of single leaf brickwork around the steelwork.



The only features otherwise are a large opening on the southern elevation providing access to vehicles and further personnel door alongside this.

4. CONDITION AND DEFECTS

The concrete floor appears to have been constructed of sufficient depth and strength to support sizeable vehicles and as such there appears to be no signs of any damage to the floor throughout, (it should be noted that parts of the floor were covered with standing bales during our inspection however).

The lattice steel frame remains in sound condition with no obvious signs of deflection or impact damage from vehicles. As might be expected, there is a modest level of surface rust in parts but this does not appear to be in anyway compromising the strength of the structure and would simply require remedial painting.

Some of the corrugated sheet cladding has been damaged over time and would need to be replaced and it was noted that there were a few pin holes appearing in some of the roof sheets. Some of the holes may be repairable with localised repairs but as the proposed development would require re-painting of the cladding in any event it would make a more effective repair if defective sheets were replaced where required.

5. CONCLUSIONS

The building appears to be in a sound, stable and serviceable condition, free from damage or irremediable deterioration.

An appropriate design of conversion would ensure that the current framework remains intact and continues to perform its supportive role but clearly the need to provide internal timber structure to provide the inner walls to the converted building will only serve to add greater support and rigidity.

In the proposed design the lower part of a number of the lattice trusses would be exposed down to ground level and these would need to be suitably treated and coated to prevent excessive rusting causing problems as a consequence of greater exposure.

In summary, we are satisfied that the building is suitable for the proposed development without recourse to any notable elements of demolition and re-building or compromising the integrity of the structure.

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